

Port of San Diego Copper Reduction Strategy for Shelter Island Yacht Basin

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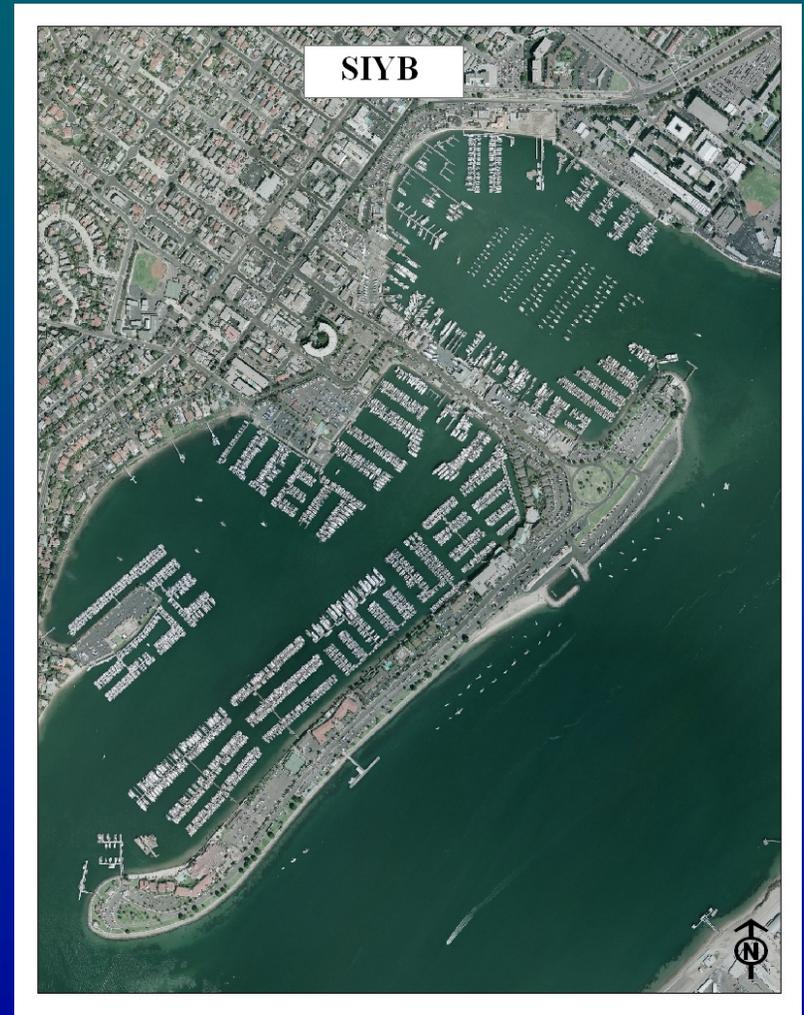


Agenda

1. Overview of SIYB
2. TMDL requirements
3. Activities Implemented 2005-Present
4. Implementation Strategy for Future Activities

Shelter Island Yacht Basin

- ❖ ~2,200 (slips) boats
- ❖ 7 marinas
- ❖ 4 yacht clubs
- ❖ 1 fuel dock
- ❖ Harbor Police dock



SIYB Copper TMDL

- ❖ 76% required load reduction
- ❖ 17 year phased compliance period
- ❖ Compliance by 2022

Stage	Years	Reduction	Start	End
1	0-2	0%	12/2005	12/2007
2	2-7	10%	2007	2012
3	7-12	40%	2012	2017
4	12-17	76%	2017	2022

SIYB Copper TMDL: Implementation (current)

Policy Milestones

- a) Directive to DPR and SWRCB in final TMDL
- b) Statewide copper study is finding elevated copper levels in several marinas
- c) Participation & Development of State Copper Sub-group (led by DPR)
- d) Paint manufacturers willing to participate in studies.

Stage 1: Orientation Period: Implementation (current)

- ❖ Objective 1: Initiation of education effort for boat owners & boating industry
 - a) Marina Inspection
 - b) Boater Survey
 - c) Brochures

- ❖ Objective 2: Initiation of commercial demonstration & scientific studies
 - a) In-water hull cleaning
 - b) Zinc study
 - c) EPA Grant: "Safer Alternatives to Copper Antifouling Paints for Marine Vessels"

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Stage 1: Orientation Period

Education & Outreach

- ❖ Marina Inspection Program
 - I. Ongoing since 1998
 - II. Inspections occur 2-3 times/year
 - III. Educate boaters on proper Best Management Practices
 - IV. Observations on slip liners and hull cleaning

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Stage 1: Orientation Period

Education & Outreach

- ❖ Brochures
 - I. “San Diego Bay Boater’s Guide”
 - II. “Boater’s Best Management Practices”
 - III. “Quick Reference Clean & Green Boating”

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Stage 1: Orientation Period

Education & Outreach

- ❖ Baseline data collection - Boater Survey
 - I. Boat use frequency
 - II. Hull cleaning method
 - III. Type of hull paint

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Stage 1: Orientation Period

Scientific Studies

- ❖ In-water Hull Cleaning Study
 - a) Completed in 2006
 - b) Evaluated multiple cleaning methods
 - c) Quantified dissolved and particulate fractions emitted during hull cleaning
 - d) In general, less abrasive methods create lower Cu loads of particulate matter

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Stage 1: Orientation Period

Scientific Studies

❖ Zinc Hull Paint Study

- a) Project estimated Zn contributions from passive leaching only – not hull cleaning
- b) Model used was similar to that used for Cu TMDL
- c) Existing concentration of Zn in SIYB already slightly elevated
- d) Zn levels could potentially exceed WQO if all boats switched
- e) Complete switch to Zn paints not recommended, but could be considered as one option for boaters

SIYB Copper TMDL

Stage 1: Orientation Period

Scientific Studies

- ❖ EPA Grant: “Safer Alternatives to Copper Antifouling Paints for Marine Vessels”
 - a) 2-year grant timeline (2007-2009)
 - b) Involve statewide stakeholder input in decision making
 - c) Develop list of available paints that are cost effective for maintenance and application

SIYB Copper TMDL Monitoring

- ❖ Monitoring to determine current and future conditions in SIYB
- ❖ Regional Harbor Monitoring
 - Conduct Core RHMP monitoring coordinated with Bight 2008
 - Develop Focus monitoring program for Copper
 - Initiate focus monitoring in 2009

SIYB Copper TMDL Port Implementation Strategy

- a) Address Copper Loading at State Level
 - I. Evaluate product registration
 - II. Participation in state-led workgroups
 - III. Work with other municipalities with upcoming TMDLs
- b) Adaptive Implementation
 - I. Ongoing process for evaluation & assessment
 - II. Conduct regular and routine monitoring
- c) Phased Approach
 - I. Education and Outreach
 - II. Encourage Voluntary Transition
 - III. Incorporate Regulation/Enforcement

SIYB Copper TMDL: Adaptive Strategy

	Stage 1			Stage 2 - 10% reduction					Stage 3 - 40% reduction					Stage 4 - 76% reduction				
Components	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Policy	Green			Green					Green					Green				
Baseline Information Collection	Blue	Green		Green					Blue					Blue				
Education/Outreach	Green			Green					Green					Blue				
Voluntary Mechanisms	Blue	Yellow		Yellow					Yellow		Blue			Blue				
Regulatory Mechanisms	Blue			Blue					Red					Red				

SIYB Copper TMDL

Stage 2: 10% Load Reduction

- ❖ Concept: Focus on voluntary compliance
- ❖ Potential Projects:
 1. Develop cohesive education strategy
 2. Complete baseline assessments
 3. Collaboration with manufacturers to test paints on boats
 4. Coordination with hull cleaners to develop appropriate BMPs
 5. Priority lists for boats having non-copper paint
 6. Incentives to boaters who voluntarily switch paints

SIYB Copper TMDL

Stage 3: 40% Load Reduction

- ❖ Concept: Began focusing on regulatory actions and enforcing ordinances to ensure non-voluntary transition
- ❖ Potential Projects:
 1. Hull Cleaning BMP requirements
 2. Initiate adherence to approved paint list
 3. Lease agreement modifications
 4. Hull paint certifications required for all boaters

SIYB Copper TMDL

Stage 4: 76% Load Reduction

- ❖ Concept: Full enforcement-based program to require boats and hull cleaners to eliminate loading to water column
- ❖ Potential Projects:
 1. Strict Prohibition on all copper paints
 2. Ordinance banning hull cleaning
 3. Require all boaters to “register” their hull paint.
 4. Rigid enforcement structure and fines for non-compliers

SIYB Copper TMDL

❖ Challenges with regulation

- Difficult if Copper paints remain on the market
- Difficult to implement policy; several parties to regulate
- Severe opposition to prohibitions

Summary

- ❖ Seek permanent resolution to hull paint pollutant loading
- ❖ Continue to advocate and support change at the state or federal level
- ❖ Utilize an adaptive approach to implementation
- ❖ Phase in regulation

Questions?

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SIYB Copper TMDL

- ❖ High levels of dissolved copper in SIYB water column (4,600 lbs/year)
- ❖ 95% of loading from passive leaching (2,000 kg or 4,400 lbs/year)
- ❖ 5% of loading from hull cleaning (100-116 kg or 220-255 lbs/year)

SIYB Copper TMDL Future Projects

- a) Adaptive (Phased) Approach
- b) Voluntary Transition
- c) Enforcement Mechanisms